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AUTHOR Egelske, Maxine L.
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ABSTRACT

This study reviewed the literature on phonological processes and decoding in beginning reading, and sought to determine the effect of functional articulation defects on decoding abilities in 18 first-grade students. Results indicated that students without speech impediments did not score significantly higher on a decoding test than students with speech impediments. No significant differences were found between: decoding scores of males and females with speech impediments, scores of students with mild and moderate speech impediments, and total reading scores of students with and without speech impediments. (JDD)

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Reading and Speech Impediments

Maxine L. Egelske
MHP, MS

EC 212292

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Statement of the Problem

The purpose of this study is to determine the effect of functional articulation defects on decoding abilities in reading of first and second grade students.

Significance of the Study

In 1970, Issac Karlin made reference to a 1966 study by Eugene Briere which was a follow-up experiment to a series of investigations on articulation impairments and reading. Conclusions were drawn that articulation impairments have an effect on reading ability. Communication disorder researchers have since investigated articulatory impairments and are able to categorize them into physiological limitations, neuromotor impairments, mental retardation, specific language disabilities, phonologic disorders, and functional articulatory defects. Concurrently, reading specialists have differentiated between oral, visual, auditory, and kinesthetic methods of learning. There is a need to update the literature on the interaction of articulation and reading because of this additional information gained in both areas.

Three to four percent of the population has been identified as speech handicapped and is the largest category of handicapps being serviced by PL 94-142 in the United States (Gearheart, 1980). Speech

and language pathologists have one of the largest caseloads among the handicapps identified in the public schools. The total percentage of articulation impairments in the average public school caseload is approximately 90.5 percent (Gearheart, 1980). With this large percentage of speech impaired students, there is a need to research the handicap and its influence on varibales within the school.

Review of the Literature

In learning to read, phonological processes could be utilized in decoding words. Backman (1984) proposed that beginning readers who sound out words are using a process referred to as "mediated access" (p. 115). "The reader generates the phonological code of a word based on knowledge of spelling-sound correspondences" (p. 115). With practice, the reader learns to store a representation of the word's pronunciation and reads without actual speech. This alternate route is referred to as "access model" in which words are recognized visually (p.115).

Perfetti and Hoeutchen (1982) describe a similar model to Backmans in which one of two processes are activated in reading. Less skilled readers

turn the letter-string formation into speech sounds before activating stored information from memory. Perfetti and Roudtchen refer to this type of learning as an "optional direct access model" (p. 5). Skilled readers are able to decode words directly from letter-string formation stored in memory. Better readers rely on word form and meaning by avoiding the optional path of applying sounds to letters. When skilled readers encounter an unfamiliar word they utilize the optional direct access path to interpret the word. Perfetti and Roudtchen conclude that articulatory levels are activated in reading.

According to a study of first and second grade readers, Lucas (1973) concluded that the process of reading has two stages. Stage one is a decoding stage in which words are perceived and translated into an acoustic code. Slightly different from Backman's study, Lucas believes that the second stage of reading is defined by the readers ability to match meaningful associations to the printed words. Marsh (1977) agrees with Lucas in that younger children begin reading with a grapheme-phoneme decoding strategy. At some point the student switches to a directlexical strategy

based on the visual representation of the word.

Obliteration of final consonant blends is the most prominent characteristic of black oral language. In a study completed by Karlsen and Blocker (1974) 68 black dialect speaking children were tested for oral reading of final consonant pronunciation. There was significant evidence that pronunciation was affected in reading, however the generalization that there was an inability to discriminate final consonants was not supported. Hart's (1980) findings correspond with Karlsen and Blocker's study in that discrimination ability is in fact with students who omit the final consonants in speech. Black english speaking students appear to have more difficulty and frustration in learning to read than non-black english speakers. Most students with functional articulation defects do not omit sounds as common with black english speakers, rather they substitute another sound for the target sound.

Phoneme awareness has been demonstrated in the literature to have a direct relationship to reading achievement. McCutchen and Perfetti (1982)

discovered that even though phonological activation hindered silent reading comprehension of visual tongue twister sentences, subjects continued to recode the written word. In Charlottesville, Virginia, Morris (1983) conducted a phoneme awareness test for beginning first grade readers. The same study was repeated one year later to twenty-three Chicago suburban first graders. Results indicated that children who had difficulty phonemically segmenting words also had difficulty spelling words, identifying words in context, and reading homographic words.

Werker (1985) studied the effects of phonemic versus visual reading techniques on severe reading disabled students and concluded that subjects rely on articulatory strategies to decode phonemic sounds. "If the phonological rule system is poorly developed or inaccessible, the disabled reader might rely on sensorimotor information obtained from the articulatory configurations approximated when attempting to sound out a new word" (p.9). When these strategies are incorrect, as in functional articulation defects, the oral-motor movements can confuse the beginning reader. To increase the sensori-motor awareness of students

Howard (1985) taught sixty-two kindergarten students the alphabet using a system called "Auditory Discrimination In-Depth Program" (p. 5). However there was no mention of any functional articulation defects among her subjects.

In the literature, reading has shown to involve one's ability to translate the visual letter into an auditory sound. When the reader becomes skilled, letter-sound correspondence becomes an automatic skill in which words develop a lexical representation stored in memory. As with black English speakers and learning disabled readers, children who have difficulty in storing a phonemic representation of the word in memory, will also have difficulty in retrieval and reading rate. Further research is needed to explore the abilities of speech impaired students whose articulation defects have no known medical or physiological etiologies.

Hypotheses

Research:

Students in first grade without functional articulation defects will obtain higher decoding scores in reading than those with functional articulation defects.

Operational:

Students in first grade without functional articulation defects will obtain higher decoding scores on the Decoding Subtest of the Ginn Unit Level Three Test than those with functional articulation defects.

Null:

Students in first grade without functional articulation defects will not obtain significantly higher decoding scores than those with functional articulation defects.

General Questions

(1) What is the effect of functional articulation defects on decoding ability?

(2) Does gender influence decoding scores?

(3) Does the degree of the functional defect influence decoding scores?

(4) Is reading comprehension affected by functional speech defects?

Procedures

The population for this study will include eighteen first grade students. Ethnic cultures will include Afro-American, Mexican-American, and Anglo-Saxon. All of the students attended a kindergarten thru fourth grade public school in a south Chicago suburb

of low to high-middle socio-economic class.

Samplings:

Nine students were identified as having a functional articulation defect in first grade. The defects ranged from tongue protrusion on /s/ and /z/ phonemes, to moderate /r/ distortions, to multiple affricate misarticulations. Nine other students were randomly selected from a class list and later identified as not having any speech impediments.

Method of Data Collection

Students in the sample were given the Fisher-Logemann Test of Articulation to determine the presence of a speech impediment. A speech pathologist evaluated the students with an impediment and reported those students with a functional articulation defect. Students with the functional articulation defects were then matched with average speaking students. Matching was based on age, gender, reading readiness scores on the Metropolitain Readiness Test, and present teacher. Scores from the Ginn Level Three test were recorded from the cumulative files. An equivalent-matching posttest only group design was utilized.

Instruments

The Fisher-Logemann Test of Articulation Competence was piloted in the greater Chicago area on five hundred children. All therapists expressed favorable views on the general linguistic bases of the test, the organization of record forms, and instructions in the manual. Norms are not utilized in this instrument.

Limitations

The study will have the following limitations:

1. The findings are applicable only to the population.
2. The instruments may not be valid and reliable.
3. The recorder of the instrument may not be competent.
4. The gender of the sample may not be equal.
5. The achievement and IQ of the sample may not be equal.

6. The sample group may be non-equivalent.

Assumptions

It is assumed the above limitations will not bias the findings:

1. The instruments are valid and reliable.
2. The recorder of the instrument is competent.
3. Gender will be controlled by matching the control and experimental groups.
4. Achievement and IQ will be controlled by matching the control and experimental groups.
5. Matching the control and experimental groups will make the groups equivalent.

Definition of Terms

Speech impediment as defined by the Fisher-Logemann Test of Articulation Competence.

Functional speech defects as judged by the speech pathologist as any speech impairment without a neurological, physiological, or phonological etiology.

Decoding abilities as defined by the Ginn Level Three Unit Test.

Treatment of Data

The decoding ability scores will be tabulated in terms of means and standard deviations. The t-test will be used at the .05 level of confidence

to determine if there is any significant difference between scores of students with and without a functional speech defect.

Results

Students without speech impediments:

mean ($\bar{x}$) = 13 standard deviation = 2.25

Student with speech impediments:

mean ($\bar{x}$) = 12 standard deviation 4.2

T-test result = .71

.05 level of confidence = 2.120

Results indicate that the null should be accepted, therefore students without speech impediments do not score significantly higher on decoding than students with speech impediments.

T-test results also indicate that there is no significant difference between males and females with speech impediments and their decoding scores.

T-test results also indicate that there is no significant difference between the scores of mild and moderate speech impediments.

T-test results also indicate that there is no significant difference between the total reading

scores of students with and without speech impediments.

Discussion

Although the t-test results indicate that the speech impediment has no significant role in decoding or reading ability one must caution to the size of this study. A total of nine control and nine experimental subjects were used in the study.

A matching posttest only group design was utilized. However the matching consisted of pairing students with similar "sound-letter correspondence" scores from the Metropolitain Readiness Test given in kindergarten. If all of the subjects were equal in their readiness to read, perhaps they would also progress at the same pace in first grade.

Finally, the Ginn Level Three Test was considered a primary test for reading. Perhaps the Level Eight or Nine tests would have led to more discrepancies between decoding and reading scores.

Bibliography

Backman, Joan (1984). Acquisition and Use of Spelling-Sound Correspondences in Reading. Journal of Experimental Child Psychology, 38, 114-133.

Briere, Eugene (1966). An Investigation of Phonological Interference. Language, 42, 768-796.

Gearheart, Bill and Weishahn, Mel (1980). The Handicapped Student in The Regular Classroom. St. Louis: The C.V. Mosby Company.

Hart, Jane, Guthrie, John, and Winfield, Linda (1980). Black English Phonology and Learning To Read. Journal of Reading and Behavior, 12, 225-229.

Howard, Marilyn (1985). Using Oral-Motor Clues To Develop Phonemic Awareness in Kindergarten. Paper presented at the Annual Meeting of The National Reading Conference. (ERIC Document Reproduction Service No. ED 265 517).

Juel, Connie and Roper-Schneider, Diane (1981). The Growth of Letter-Sound Correspondence Knowledge in First Grade and It's Relation to Reading Achievement and Programs. Presented at the Annual Meeting of the National Reading Conference. (ERIC Document Reproduction Service No. ED 211 949).

Karlin, Isaac and Karlin, David (1970). Development and Disorders of Speech in Childhood. Springfield, IL: Charles C. Thomas Publ.

Karlsen, Bjorn and Blocker, Margaret (1974). Black Children and Final Consonant Blends. Reading Teacher, 27, 462-463.

Lucas, Jana (1973). Phonological and Semantic Components of words in Beginning Reading. Paper presented at the Annual Meeting of the American Educational Research Assn. (ERIC Document Reproduction Service No. ED 078 385).

Marsh, George (1977). Developmental Changes in Reading Strategies. Journal of Reading Behavior, 9, 391-394.

McCutchen, Deborah and Perfetti, Charles (1982). The Visual Tongue-Twister Effect: Phonological Activation in Silent Reading. Journal of Verbal Learning and Verbal Behavior, 21, 672-687.

Morris, Darrell (1983). Concept of Word and Phoneme Awareness in the Beginning Reader. Research in the Teaching of English, 17, 359-373.

Perfetti, Charles and McCutchen, Deborah (1983). Speech Processes in Reading. Pittsburgh Univ., Pa.: Learning Research and Development Center. (ERIC Document Reproduction Service No. ED 244 221).

Werker, Janet (1985). Consonant Errors of Severely Disabled Readers. Paper presented at the Meeting of the Society for Research in Child Development. (ERIC Document Reproduction Service No. ED 259 318).